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PATENT APPLICATION
09/848,871



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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Abed Mohd Jaber
Serial No.: 09/848,871
Filing Date: May 4, 2001
Group Art Unit: 2666
Examiner: Kevin C. Harper
Title: Method and System for Modeling and Advertising Asymmetric Topology of a Node in a Transport Network

MAIL STOP: Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
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Willie Jiles
Willie Jiles

Date: 1-23-2006

Appeal Brief

Appellants have appealed to the Board of Patent Appeals and Interferences (the "Board") from the decision of the Examiner mailed August 24, 2005, finally rejecting all pending Claims 1, 3-9, 11-17 and 19-24. Appellants filed a Notice of Appeal on November 22, 2005 together with a check in the amount of \$500.00 pursuant to 37 C.F.R. 1.17(b).

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Real Party In Interest

Fujitsu Limited currently owns this application, and an Assignment Recordation was filed with the U.S. Patent and Trademark Office on December 6, 2005.

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Related Appeals and Interferences

To the knowledge of Appellants' counsel, there are no known interferences or judicial proceedings that will directly affect or be directly affected by or have a bearing on the Board's decision regarding this Appeal.

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Status of Claims

Claims 1, 3-9, 11-17 and 19-24 are pending in this Application, stand rejected pursuant to a final Office Action mailed August 24, 2005 (the "Final Office Action") and are all presented for appeal. All pending claims are shown in Appendix A, attached hereto, along with an indication of the status of those claims.

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Status of Amendments

All amendments submitted by Appellant have been entered by the Examiner.

Summary of Claimed Subject Matter

The present invention relates to a method for providing an internal topology of a node within a network. Referring to Figures 1, 3, 4 and 5, the processing system 102 includes four CPUs 108 each configurable to operate the IPT node 30 or a transport element 52. The first CPU 140 manages the IPT node 30 and includes a simple network management protocol (SNMP) agent/internal network layer one (IPTL1) management information base (MIB) 142 for the IPT node 30. A common management information base (CMIB) 144 includes a model 146 of the transport network 10 and slave models 148 for transport elements having local ports. A database manager 150 manages the CMIB 144. An internal transport network layer one (IPTL1) architecture 152 includes an internal open shortest path first (IOSPF) instance 154 for discovery of the transport network 10. The IPTL1 architecture also includes control component subsystems 156. *Page 15, Line 21 – Page 16, Line 3.*

In one embodiment, the IPT nodes 30 may comprise internal asymmetric connections between and/or within RTPs 100. In this embodiment, each node may determine and advertise its own topology for use by other nodes and store the topology of other nodes for internal routing. *Page 16, Lines 4-8.*

In a particular embodiment, the CPU 108 managing the IPT node 30 determines the topology of the node by identifying the RTPs 100 of the node and the local or other interfaces 106 between the RTPs 100. Location of the node in the network and external link connections may also be identified. *Page 16, Lines 9-14.*

Based on the topology results, all possible, feasible or other suitable connectivity between components of the IPT node may be identified using IOSPF 154. The IOSPF 154 may weight each internal link using a low weight for high speed, intra RTP 100 connections and a higher weight for lower speed inter RTP 100 connections. In one embodiment, the high speed links are operable to transport traffic at a rate of 5 Gb/s or higher, such as 10 Gb/s. Non-connected, or impossible links may be given a very high weight to prevent selection. IOSPF is then run to determine all connectivity between node components. *Page 16, Lines 15-26.*

After determination of the internode topology, the topology is distributed to other IPT nodes in the transport network. In one embodiment, the intranode connectivity is encoded

into and advertised and/or flooded in opaque LSAs upon node activation or modification. The opaque LSA provides a model of the node to other nodes in the network. It will be understood that the internal node topology may be otherwise suitable modeled to other network nodes such that the nodes can interpret the information and use it to determine routing paths through the network. In this embodiment, each IPT node 30 stores the topology of the other nodes in a local configuration or other suitable database. A path label calculation may interact with the database to determine normal, or working, and protect paths for traffic through the network. *Page 16, Line 27 – Page 17, Line 10.*

In another embodiment, the RTPs 100 and/or components with interfaces may be modeled as routers. In this embodiment, the router is a point without latency between points with bandwidth restrictions. Internode topology is identified by the RTP/interface connections. It will be understood that the topology of an asymmetric ITP node may be otherwise simply determined without departing from the scope of the present invention. *Page 17, Lines 11-18.*

Grounds of Rejection to be Reviewed on Appeal

I. Appellants request that the Board review the Examiner's rejection of Claims 1, 3-4, 6, 9, 11-14, 17, 19-20 and 22 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,483,522 issued to Derby et al. ("Derby") in view of U.S. Patent No. 5,432,783 issued to Ahmed et al. ("Ahmed"), U.S. Patent No. 6,529,300 issued to Milton et al. ("Milton") and U.S. Patent No. 6,046,982 issued to Ozveren et al. ("Ozveren").

II. Appellants request that the Board review the Examiner's rejection of Claims 5, 7-8, 13, 15-16, 21 and 23-24 as being unpatentable over *Derby* in view of *Ahmed*, *Milton* and *Ozveren* and further in view of U.S. Patent No. 6,016,306 issued to Le Boudec et al. ("Le Boudec").

Argument

The Examiner's rejections of Claims 1, 3-9, 11-17 and 19-24 are improper, and the Board should withdraw the rejections for the reasons given below.

I. Claims 1, 3-4, 6, 9, 11-14, 17, 19-20 and 22 are patentable over the proposed Derby-Ahmed-Milton-Ozveren combination.

The Examiner rejects Claims 1, 3-4, 6, 9, 11-14, 17, 19-20 and 22 under 35 U.S.C. §103(a) as unpatentable over *Derby* in view of *Ahmed*, *Milton* and *Ozveren*. Appellant respectfully submits that the rejection based on the proposed *Derby-Ahmed-Milton-Ozveren* combination fails for two reasons – (1) the proposed combination fails to teach or suggest all elements of the claims and (2) the references teach away from the combination.

A. The Proposed Combination Fails to Teach or Suggest All Claim Elements

To establish obviousness of a claimed invention under §103, all claim limitations must be taught or suggested by the prior art. For the reasons discussed below, Appellant respectfully submits that *Derby*, *Ahmed*, *Milton* and *Ozveren*, whether taken alone or in combination, fail to teach or suggest all elements of the claims. Consider independent Claim 1, as presently presented, which recites:

A method for providing an internal topology of a node within a network, comprising:

determining asymmetric connections between receiver transmitter pairs (RTPs) in a network node; the RTPs each comprising intra RTP connections between internal RTP components, the intra RTP connections having a higher speed than the asymmetric connections between the RTPs, wherein the internal RTP components comprise an optical receiver and an optical transmitter for interfacing with a wavelength division multiplex (WDM) system;

determining an intranode connectivity between the RTPs based on the asymmetric connections;

distributing a model of the node indicative of the intranode connectivity to a disparate node in a network with the node; and

using the model at the disparate node in determining a routing path through the network.

Appellant respectfully submits that *Derby*, *Ahmed*, *Milton* and *Ozveren*, alone or in combination, fail to teach or suggest every element of this claim. Among other aspects of Claim 1, *Derby*, *Ahmed*, *Milton* and *Ozveren*, alone or in combination, fail to teach or suggest:

determining asymmetric connections between receiver transmitter pairs (RTPs) in a network node; the RTPs each comprising intra RTP connections between internal RTP components, the intra RTP connections having a higher speed than the asymmetric connections between the RTPs

The Examiner contends that *Derby* discloses a node having intranode connectivity between RTPs and that each RTP has intra RTP connections between internal RTP components. *See* Final Office Action, page 3, ¶ 3. The Examiner contends that the subnodes of Figure 6 of *Derby* disclose intranode connectivity between RTPs. *See id.* The Examiner also contends that packet switching bus 23 of *Derby* discloses intra RTP connections between internal RTP components. *See id.*

The Examiner admits that *Derby* fails to disclose intra RTP connections between internal RTP components having a higher speed than connections between the RTPs but contends that this disclosure is made obvious by *Ozveren* which the Examiner contends discloses "a switch (figs. 1 and 2) that operates at a higher speed than external links (col. 6, lines 14-20)." Final Office Action, page 3, ¶ 6. The Examiner, however, fails to explain how this cited portion of *Ozveren* discloses intra RTP connections between internal RTP components of a network node having a higher speed than connections between the RTPs of the node. This cited portion of *Ozveren* merely discloses a switch throughput of 800 Mb/s, a port speed of 155 Mb/s and an aggregate input data rate of 1.2 Gb/s. *See Ozveren*, col. 6, lines 14-20. There is no disclosure of a node having intra RTP connections between internal

RTP components having a higher speed than connections between the RTPs of the node. For example, the cited portion of *Ozveren* appears to disclose internal throughput speed of the switch and speeds of external links of the switch. However, the claim element at issue relates to connections that are internal node connections – a node with intra RTP connections between internal RTP components and connections between the RTPs of the node. The Examiner does not even indicate which of the components of the *Ozveren* switch it contends is an RTP (thus having internal RTP connections between its components) and which switch components comprise connections between RTPs.

Appellant thus respectfully requests that the Board reverse the rejection under Section 103 and instruct the Examiner to issue a notice of allowance for independent Claim 1 and its respective dependent claims. For analogous reasons, Appellant respectfully requests that the Board reverse the rejection under Section 103 and instruct the Examiner to issue a notice of allowance for independent Claims 9 and 17 and their respective dependent claims.

B. There is No Teaching or Suggestion Supporting the Combination or Modification of *Derby*, *Ahmed*, *Milton* and *Ozveren*

According to the Federal Circuit, "a showing of a suggestion, teaching, or motivation . . . is an 'essential component of an obviousness holding.'" *Brown & Williamson Tobacco Corp. v. Philip Morris Inc.* , 229 F.3d 1120, 1124-25, 56 U.S.P.Q.2d 1456, 1459 (Fed. Cir. 2000) (quoting *C.R. Bard, Inc., v. M3 Systems, Inc.*, 157 F.3d 1340, 1352, 48 U.S.P.Q.2d 1225, 1232 (Fed. Cir. 1998)). Furthermore, while "evidence of a suggestion, teaching, or motivation . . . may flow from the prior art references themselves, the knowledge of one of ordinary skill in the art, or, in some cases, the nature of the problem to be solved, . . . [t]he range of sources available . . . does not diminish the requirement for actual evidence." *In re Dembiczaik*, 175 F.3d 994, 999, 50 U.S.P.Q.2d 1614, 1617 (Fed. Cir. 1999). Thus, it is a factual question that cannot be resolved on subjective belief and unknown authority, but must be based on objective evidence of record. See *In re Lee*, 277 F.3d 1338, 1343-44, 61 U.S.P.Q.2d 1430, 1434 (Fed. Cir. 2002). Indeed, the factual inquiry whether to combine or

modify references must be thorough and searching. *McGinley v. Franklin Sports, Inc.*, 262 F.3d 1339, 1351-52, 60 U.S.P.Q.2d 1001, 1008 (Fed. Cir. 2001).

Appellant submits that the there is no teaching, suggestion, or motivation to combine or modify the teachings of *Derby*, *Ahmed*, *Milton* and *Ozveren* either in the references themselves or in the knowledge generally available to one of ordinary skill in the art.

1. *Combination with Ahmed*

Appellants submit that the combination of *Derby* and *Ahmed* is improper. The Final Office Action states that:

Derby does not disclose the connections between the traffic bearing components as asymmetric. *Ahmed* discloses connections among switching entities that are bi-directional and asymmetric (col. 2, lines 5-8). Therefore, it would have been obvious to one skilled in the art at the time the invention was made to have asymmetric connections between traffic bearing components in the invention of *Derby* in order to accommodate a larger capacity demand in one direction.

See Final Office Action, page 3, ¶ 4. However, *Derby* specifically teaches away from using asymmetric connections between its intranode traffic bearing components. *Derby* discloses a routing diagram and routing field for a message from a source node 70 to a subnode 81 of a destination node 72 via subnodes 75 and 79. *See Derby*, Figure 8 and col. 9, lines 23-55. *Derby* also discusses a reverse path for routing a message from subnode 81 of destination node 72 to source node 70. *See id.*, col. 9, lines 57-62. In this discussion, *Derby* indicates that reverse path accumulation enables the destination user application to send a reply to the message. *See id.* This is accomplished by merely reversing the original routing path such that the message travels from subnode 81 to node 70 via subnodes 79 and 75. *See id.* and Table 1. The indication that it is reverse path accumulation that enables message to travel from a destination node to a source node specifically teaches away from the use of asymmetric connections in *Derby*, because if the connections in *Derby* were asymmetric, then there would be an optimal routing path from the destination to the source that is different

from the mere reversal of the original path between the source and the destination taught by *Derby*. Thus, using asymmetric connections in *Derby* directly conflicts with the teachings of *Derby*.

Moreover, "[t]he mere fact that references *can* be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination." M.P:E.P. § 2143.01. Thus, the mere allegation that the teachings of *Ahmed* would improve the teachings of *Derby*, as asserted by the Final Office Action, does not provide the required suggestion to combine.

Nothing in *Derby*, *Ahmed* or any other cited references suggests or motivates the proposed combination, nor does the Final Office Action provide any evidence that suggests the proposed modification. The Final Office Action speculates that "it would have been obvious to one skilled in the art at the time the invention was made to have asymmetric connections between traffic bearing components in the invention of *Derby* in order to accommodate a larger capacity demand in one direction" but presents no evidence that suggests or motivates the combination. *See* Final Office Action, page 4, ¶ 3. Simply stating the standard of obviousness is not sufficient to establish the required motivation to combine the references. *See In re Denis Rouffet*, 1998 WL 400169 (Fed. Cir.). The Federal Circuit has held that broad conclusory statements by the Examiner regarding the teaching of multiple references, standing alone, are not "evidence." *See In re Dembicza*k, 175 F.3d 994, 999 (Fed. Cir. 1999). Instead, the Examiner must explain the specific understanding or principle within the knowledge of the skilled artisan that would motivate the combination. *See id.* Thus, the Final Office Action's suggestion that it would have been obvious to have asymmetric connections between traffic bearing components in the invention of *Derby* does not provide the required motivation to combine the references.

2. Combination with Ozveren

After contending that *Ozveren* discloses the claim element at issue discussed above, the Final Office Action states "[t]herefore, it would have been obvious to one skilled in the art at the time the invention was made to have a higher speed internal link in the invention of Derby in view of Ahmed and Milton in order to accommodate an aggregate amount of data arriving from several external links." Final Office Action, pages 3-4, ¶ 6. First, Appellants point out again that Claim 1 does not recite "external links" of a node. Second, the Final Office Action fails to cite to the specific motivation in the art that provides the motivation to combine *Ozveren* with *Derby*, *Ahmed* and *Milton*. The Examiner's conclusory assertion that it would have been obvious to combine *Ozveren* with the other cited references to arrive at Appellants' invention "in order to accommodate an aggregate amount of data arriving from several external links" is entirely insufficient to support a *prima facie* case of obviousness under 35 U.S.C. § 103(a) under the M.P.E.P. and the governing Federal Circuit case law. The Final Office Action fails to cite any portion of the prior art as teaching the motivation. There is no teaching, suggestion or motivation in the art to combine *Ozveren* in the manner suggested by the Final Office Action.

3. Combination with Milton

Appellants submit that the combination of *Derby* and *Milton* is improper. After stating that *Derby* in view of *Ahmed* "does not disclose that internal RTP components . . . provide a connection to a WDM system," the Final Office Action states that:

Milton discloses interconnected nodes of a WDM network (fig. 1 and fig. 3, items 14 and 15), wherein the nodes have internal interfaces (items 14) to the WDM system (items 2 and 3). Therefore, it would have been obvious to one skilled in the art at the time the invention was made to provide an interface to a WDM system in the invention of Derby in view of Ahmed in order to provide network connectivity using a well-known and widely used protocol for efficiently transmitting data.

Final Office Action, page 3, ¶ 5. However, the Examiner has not shown the required teaching, suggestion, or motivation in the prior art to combine *Milton* with the other cited references in the manner the Examiner proposes. Appellants respectfully submit that the Examiner's conclusory assertion that it would have been obvious to combine *Milton* with the other cited references to arrive at Appellants' invention "in order to provide network connectivity using a well-known and widely used protocol for efficiently transmitting data" is entirely insufficient to support a *prima facie* case of obviousness under 35 U.S.C. § 103(a) under the M.P.E.P. and the governing Federal Circuit case law. *Milton* generally discloses a WDM network with optical, pass-through nodes. Neither *Derby* nor *Ahmed* relate to optical network systems. In addition, the Final Office Action fails to cite any portion of the prior art as teaching the motivation. There is no teaching, suggestion or motivation in the art to combine *Milton* in the manner suggested by the Final Office Action.

Since the prior art fails to provide the required teaching, suggestion, or motivation to properly combine *Derby*, *Ahmed*, *Milton* and *Ozveren* in the manner the Examiner proposes, Appellants respectfully submit that the Examiner's conclusions set forth in the Final Office Action fall well short of the requirements set forth in the M.P.E.P. and the governing Federal Circuit case law for demonstrating a *prima facie* case of obviousness. Thus, Appellants respectfully submit that the Examiner's proposed combinations appear to be merely an attempt, with the benefit of hindsight, to reconstruct Appellants' claims and are unsupported by the teachings of the cited art.

Accordingly, the proposed combination is improper, and Appellants respectfully request that the Board reverse the rejection under Section 103 and instruct the Examiner to issue a notice of allowance for Claims 1, 3-4, 6, 9, 11-14, 17, 19-20 and 22.

II. Claims 5, 7-8, 13, 15-16, 21 and 23-24 are patentable over the proposed Derby-Ahmed-Milton-Ozveren-Le Boudec combination.

The Examiner rejects Claims 5, 7-8, 13, 15-16, 21 and 23-24 under 35 U.S.C. §103(a) as unpatentable over *Derby* in view of *Ahmed*, *Milton* and *Ozveren* and further in view of *Le Boudec*. Appellants respectfully submit that these claims are allowable for the same reason discussed above with respect to independent Claims 1, 9 and 17 from which these claims depend.

In addition, the Final Office Action states that "*Le Boudec* discloses assigning links based on cost, bandwidth or delay (col. 1, lines 39-52 and 56-62) and using an Open Shortest Path First weighted routing determination to find a best path using opaque LSAs." Final Office Action, page 4, ¶ 8. The Final Office Action additionally states "[t]herefore, it would have been obvious to one skilled in the art at the time the invention was made to assign appropriate weights to the connections in the invention of *Derby* in view of *Ahmed*, *Milton* and *Ozveren* as evidenced by *Le Boudec* in order to provide optimal routing within the network. However, the Final Office Action fails to cite to any portion of any prior art as supporting the motivation to combine the references. The Examiner's conclusory assertion that it would have been obvious to combine *Le Boudec* with the other cited references to arrive at Appellants' invention is entirely insufficient to support a *prima facie* case of obviousness under 35 U.S.C. § 103(a) under the M.P.E.P. and the governing Federal Circuit case law. There is no teaching, suggestion or motivation in the art to combine *Ozveren* in the manner suggested by the Final Office Action.

Accordingly, the proposed combination is improper, and Appellants respectfully request that the Board reverse the rejection under Section 103 and instruct the Examiner to issue a notice of allowance for Claims 5, 7-8, 13, 15-16, 21 and 23-24.

Conclusion

Appellants have demonstrated that the present invention, as claimed, is clearly distinguishable over the prior art cited by the Examiner. Therefore, Appellants respectfully request the Board of Patent Appeals and Interferences to reverse the Examiner's final rejection of the pending claims and instruct the Examiner to issue a notice of allowance of all pending claims.

Appellants have enclosed a check in the amount of \$500.00 for this Appeal Brief. Appellants believe no additional fees are due. The Commissioner is hereby authorized to charge any fee and credit any overpayment to Deposit Account No. 02-0384 of Baker Botts L.L.P.

Respectfully submitted,
BAKER BOTTS L.L.P.
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Appendix A: Claims on Appeal

1. (Previously Presented) A method for providing an internal topology of a node within a network, comprising:

determining asymmetric connections between receiver transmitter pairs (RTPs) in a network node; the RTPs each comprising intra RTP connections between internal RTP components, the intra RTP connections having a higher speed than the asymmetric connections between the RTPs, wherein the internal RTP components comprise an optical receiver and an optical transmitter for interfacing with a wavelength division multiplex (WDM) system;

determining an intranode connectivity between the RTPs based on the asymmetric connections;

distributing a model of the node indicative of the intranode connectivity to a disparate node in a network with the node; and

using the model at the disparate node in determining a routing path through the network.

2. (Canceled)

3. (Previously Presented) The method of Claim 1, wherein the RTPs comprise lower speed interfaces to external nodes coupled to the network.

4. (Previously Presented) The method of Claim 1, further comprising determining all possible internode connectivity between the RTPs based on the asymmetric connections.

5. (Original) The method of Claim 1, further comprising distributing the model using opaque link state advertisements (LSAs).

6. (Original) The method of Claim 1, wherein the network comprises a private network.

7. (Previously Presented) The method of Claim 1, further comprising determining internode connectivity between the RTPs by assigning weights to the asymmetric connections based on their speed.

8. (Original) The method of Claim 1, further comprising:
assigning a first weight for higher speed connections and a second higher weight for lower speed connections to generate weighted connections; and
utilizing open shortest path first on the weighted connections at the disparate node to determine the routing path through the network.

9. (Previously Presented) A system for providing an internal topology of a node within a network, comprising:

means for determining asymmetric connections between receiver transmitter pairs (RTPs) in a network node; the RTPs each comprising intra RTP connections between internal RTP components, the intra RTP connections having a higher speed than the asymmetric connections between the RTPs, wherein the internal RTP components comprise an optical receiver and an optical transmitter for interfacing with a wavelength division multiplex (WDM) system;

means for determining an intranode connectivity between the RTPs based on the asymmetric connections;

means for distributing a model of the node indicative of the intranode connectivity to a disparate node in a network with the node; and

means for using the model at the disparate node in determining a routing path through the network.

10. (Canceled)

11. (Previously Presented) The system of Claim 9, wherein the RTPs comprise lower speed interfaces to external nodes coupled to the network.

12. (Previously Presented) The system of Claim 9, further comprising means for determining all possible internode connectivity between the RTPs based on the asymmetric connections.

13. (Original) The system of Claim 9, further comprising means for distributing the model using opaque link state advertisements (LSAs).

14. (Original) The system of Claim 9, wherein the network comprises a private network.

15. (Previously Presented) The system of Claim 9, further comprising means for determining internode connectivity between the RTPs by assigning weights to the asymmetric connections based on their speed.

16. (Original) The system of Claim 9, further comprising:
means for assigning a first weight for higher speed connections and a second higher weight for lower speed connections to generate weighted connections; and
means for utilizing open shortest path first on the weighted connections at the disparate node to determine the routing path through the network.

17. (Previously Presented) A system for providing an internal topology of a node within a network, comprising:

logic encoded in media; and

the logic operable to determine asymmetric connections between receiver transmitter pairs (RTPs) in a network node, the RTPs each comprising intra RTP connections between internal RTP components, the intra RTP connections having a higher speed than the asymmetric connections between the RTPs, wherein the internal RTP components comprise an optical receiver and an optical transmitter for interfacing with a wavelength division multiplex (WDM) system, the logic further operable to determine an intranode connectivity between the RTPs based on the asymmetric connections, to distribute a model of the node indicative of the intranode connectivity to a disparate node in a network with the node and to use the model at the disparate node in determining a routing path through the network.

18. (Canceled)

19. (Previously Presented) The system of Claim 17, wherein the RTPs comprise lower speed interfaces to external nodes coupled to the network.

20. (Previously Presented) The system of Claim 17, the logic further operable to determine all possible internode connectivity between the RTPs based on the asymmetric connections.

21. (Original) The system of Claim 17, the logic further operable to distribute the model using opaque link state advertisements (LSAs).

22. (Original) The system of Claim 17, wherein the network comprises a private network.

23. (Previously Presented) The system of Claim 17, the logic further operable to determine internode connectivity between the RTPs by assigning weights to the asymmetric connections based on their speed.

24. (Original) The system of Claim 17, the logic further operable to assign a first weight for higher speed connections and a second higher weight for lower speed connections to generate weighted connections and to utilize open shortest path first on the weighted connections at the disparate node to determine the routing path through the network.

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Appendix B: Evidence

NONE

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Appendix C: Related Proceedings

NONE